

What is claimed is:

1. A mask-frame assembly for a color cathode-ray tube, comprising:

first and second support members spaced out a predetermined distance;

first and second resilient support members installed between the first and second

5 support members supporting the first and second support members, each of the first and second resilient support members comprising supports fixed to the first and second support members and a connecting portion connecting the supports;

a mask installed at the first and second support members such that tension is applied thereto, the mask comprising a plurality of electron beam through holes; and

10 a compensating unit connected between the first and second support members or the supports of the resilient support members between each connecting portion and the mask, the compensating unit being formed of a material having a lower thermal expansion coefficient than that of the first and second resilient support members.

15 2. The mask-frame assembly of claim 1, wherein the compensating unit

comprises a pair of flat bars each having both ends fixed to the supports of the respective first and second resilient support members.

20 3. The mask-frame assembly of claim 2, wherein the compensating unit

comprises a vibration reduction unit installed at each of the flat bars to reduce vibration thereof.

25 4. The mask-frame assembly of claim 1, wherein each of the first and second

support members comprises a keeper supporting the mask and a flange extending inward from the edge of the keeper, and the compensating unit comprises a pair of bars each having both ends fixed to respective ones of the flanges of the first and second support members.

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5. The mask-frame assembly of claim 1, wherein the compensating unit comprises a pair of bars each having both ends fixed to respective ends of the first and second support members.

5 6. The mask-frame assembly of claim 4, wherein the compensating unit comprises;
a first and second pair of first and second brackets extending from respective ends of the first and second support members in facing directions; and
a pair of bars each having both ends fixed to the respective pair of first and second
10 brackets .

7. The mask-frame assembly of claim 6, further comprising coupling units fixing the bars to the respective pair of first and second brackets .

15 8. The mask-frame assembly of claim 7, wherein each coupling unit is one among a bolt and nut, a rivet, and screws formed at both ends of the respective bar and the respective pair of first and second brackets.

20 9. The mask-frame assembly of claim 1, wherein the compensating unit comprises a pair of support bars each having both ends screwed to the respective ends of the first and second support members.

25 10. The mask-frame assembly of claim 1, wherein each of the first and second support members comprises a keeper supporting the mask and a flange extending inward from the edge of the keeper, and the compensating unit comprises a pair of bars each having both ends fixed to respective ones of the keepers of the first and second support members.

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11. The mask-frame assembly of claim 1, wherein a thermal expansion coefficient of the mask is greater than that of the compensating unit and is equal to or greater than that of the first and second resilient support members.

5 12. The mask-frame assembly of claim 1, wherein the mask comprises:
a plurality of strips spaced out a predetermined distance, wherein the plurality of
electron beam through holes are formed between the strips at predetermined pitches;
real bridges for connecting the strips to one another, to separate the electron beam
through holes which are formed in a same line ; and
10 a plurality of dummy bridges extending from the strips to partition the electron beam
through holes.

13. A mask-frame assembly for a color cathode-ray tube, comprising:
a frame comprising first and second support members spaced out a predetermined
15 distance, and first and second resilient support members installed between the first and
second support members, supporting the first and second support members, each of the first
and second resilient support members comprising supports fixed to the first and second
supports and a connecting portion connecting the supports;
a mask installed at the first and second support members such that tension is applied
20 thereto, the mask comprising a plurality of electron beam passage holes; and
a compensating unit connected between the first and second support members or
the supports of the first and second resilient members between each connecting portion and
the mask, the compensating unit being formed of a material having a lower thermal
expansion coefficient than that of the first and second resilient support members,
25 wherein values of a length L of the frame, a sectional area A of the compensating
unit, a difference in thermal expansion between each resilient support member and the
compensating unit, a height H from a center of a height of each of the first and second
resilient support members to the compensating unit, and a second order section modulus I in
an X direction when first and second directions perpendicular to each other of the section of

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each resilient support member are represented by X and Z, respectively, are set to satisfy $0.1 \leq (A \times H^2 \times \Delta \alpha \times 10^4) / l$.

14. The mask-frame assembly of claim 13, wherein the values are set to satisfy $0.1 \leq (A \times H^2 \times \Delta \alpha \times 10^4) / l < 1$.

15. The mask-frame assembly of claim 13, wherein the compensating unit comprises a pair of flat bars each having both ends fixed to the supports of the respective first and second resilient support members.

16. The mask-frame assembly of claim 15, wherein the compensating unit comprises a vibration reduction unit installed at each of the flat bars to reduce vibration thereof.

17. The mask-frame assembly of claim 16, wherein the vibration reduction unit comprises at least one via-hole formed at each flat bar and a corresponding vibration preventing member shakably installed in the via-hole.

18. The mask-frame assembly of claim 13, wherein each of the first and second support members comprises a keeper supporting the mask and a flange extending inward from the edge of the keeper, and the compensating unit comprises a pair of bars each having both ends fixed to respective ones of the flanges of the first and second support members.

19. The mask-frame assembly of claim 13, wherein the compensating unit comprises a pair of bars each having both ends fixed to respective ends of the first and second support members.

20. The mask-frame assembly of claim 13, wherein the compensating unit comprises;

compensating unit to the mask after cooling, thereby maintaining an initial tension of the mask.

24. The mask-frame assembly of claim 23, wherein the compensating unit
5 comprises a vibration reduction unit to reduce vibration thereof.

25. The mask-frame assembly of claim 23, wherein a thermal expansion
coefficient of the mask is greater than that of the compensating unit and is equal to or
greater than that of the first and second resilient support members.

26. The mask-frame assembly of claim 23, wherein the mask comprises:
a plurality of strips spaced out a predetermined distance, wherein the plurality of
electron beam through holes formed between the strips at predetermined pitches;
real bridges for connecting the strips to one another, to separate the electron beam
15 through holes which are formed in a same line ; and
a plurality of dummy bridges extending from the strips to partition the electron beam
through holes.

27. The mask-frame assembly of claim 4, wherein the bars are formed on
20 surfaces of the flanges facing away from the mask.

28. The mask-frame assembly of claim 4, wherein the bars are formed on
surfaces of the flanges facing the mask.

29. The mask-frame assembly of claim 18, wherein the bars are formed on
25 surfaces of the flanges facing away from the mask.

30. The mask-frame assembly of claim 18, wherein the bars are formed on
surfaces of the flanges facing the mask.

31. The mask-frame assembly of claim 2, wherein the bars are fixed to surfaces of the supports of the first and second resilient support members which face the supports of the other one of the first and second resilient support members.

5 32. The mask-frame assembly of claim 2, wherein the bars are fixed to surfaces of the supports of the first and second resilient support members which face away from the supports of the other one of the first and second resilient support members.

10 33. The mask-frame assembly of claim 15, wherein the bars are fixed to surfaces of the supports of the first and second resilient support members which face the supports of the other one of the first and second resilient support members.

15 34. The mask-frame assembly of claim 15, wherein the bars are fixed to surfaces of the supports of the first and second resilient support members which face away from the supports of the other one of the first and second resilient support members.

20 35. The mask-frame assembly of claim 8, wherein each coupling unit comprises screws formed at both ends of the respective bar and the respective pair of first and second brackets, and the screws formed at both ends of each respective bar spirals in an opposite direction.

25 36. The mask-frame assembly of claim 1, wherein the compensating unit comprises:
a pair of bars connected between the first and second support members or the supports of the first and second resilient members; and
a vibration reduction unit attached to each bar to reduce a vibration thereof.

37. The mask-frame assembly of claim 36, wherein the vibration reduction unit comprises:

